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REMARKS

Claims 1-37 are pending with Claims 1, 5, 7, 9-12, 15-24, 26-37 being amended herein. Applicants believe that none of the foregoing amendments have added new matter to the application.

The specific changes to the specification are shown on a separate set of pages attached hereto and entitled VERSION WITH MARKINGS TO SHOW CHANGES MADE, which follows the signature page of this Amendment. On this set of pages, the insertions are underlined while the ~~deletions are struck through~~.

The foregoing amendments more closely conform the application to U.S. practice. The above requested changes to the application do not add new matter, and entry of the amendments is respectfully requested. If, however, there are any matters which could be resolved by a telephone interview, the Examiner is cordially invited to contact the undersigned by telephone so that any such matters can be promptly resolved.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated:

27 April 2001

By:

Karoline A. Delaney

Karoline A. Delaney
Registration No. 44,058
Attorney of Record
620 Newport Center Drive
Sixteenth Floor
Newport Beach, CA 92660

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION

The following paragraph has been added, immediately after the title:

Cross-Reference to Related Applications

This application claims priority to South African Application Serial Number 98/9866 filed on October 29, 1998 and PCT Application Serial Number PCT/IB99/01747 filed on October 29, 1999, the disclosures of which are incorporated herein by reference in their entireties.

The paragraph beginning at page 1, line 6, has been amended as follows:

~~Description of an Embodiment~~ Detailed Description of the Preferred Embodiments

The paragraph beginning at page 11, line 16, has been amended as follows:

In the process, the lid 28 of the bottle 20 is removed an aliquot sample of ore is added to a bottle 20 containing flux 26, the lid ~~22~~ 28 is applied back onto the bottle 20 and the sample and flux is combined by merely shaking the bottle.

The paragraph beginning at page 12, line 10, has been amended as follows:

Referring to Figure 3, bottles 2 which contain ore sample combined with flux are loaded onto a sample loader 34 which comprises a conveyor belt 36, an optical sensor 38, a bar code reader 40, and a mechanical gripper arm 42. In use, the optical sensor 38 senses the presence of a bottle 20, the bar code reader 40 (positioned above the bottle, and shown in dotted outline) scans the bar code 28 on the lid ~~22~~ of the bottle 20 and the gripper arm 42 grips the bottle at the ridge 30 and transfers it into an induction furnace 44 which is powered by a generator 46. The conveyor 36 conveys the next bottle 20 in line with the sensor 38 and this next bottle is then ready to be transferred into the induction furnace 44. Once placed in the induction furnace 44, the identity of the bottle 20 is compared to the information stored on the central database and the bottle 20 is heated at a temperature profile that corresponds to the ore sample and flux contained within the bottle 20.

The paragraph beginning at page 13, line 26, has been amended as follows:

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In a typical example where the temperature profile is kept constant, the melting pot 46 26 is heated to about 900° and the flux and sample is inserted into the melting pot 46 26. The coil 48 is supplied with 15-30 kW of electrical energy from the generator 46 for a predetermined first period of time (usually 20 to 30 seconds) to heat the pot to about 1250°C and then dropped to 10 to 12kW for a predetermined second period of time (usually 20 to 30 seconds), maintaining the temperature of the melting pot about 1250°C. Thus, fusion of the ore and flux takes from 45 to 90 seconds, generally approximately 60 seconds.

The paragraph beginning at page 15, line 21, has been amended as follows:

The advantage of the flux 26 over known flux compositions is that the sodium hydroxide has a melting point of 318°C, which is much lower than the melting point of CaCO₃, used in conventional fire assay processes. Thus, when the flux 26 is added to the crucible 46 in the induction furnace 46 44 (which is normally preheated a temperature of about 1000°C), the sodium hydroxide melts, wets the sample and flux, and retards spattering and boiling when power is applied to the induction furnace. The sodium hydroxide then reacts with silicates in the sample to form slag. Up to now it has not been possible to use sodium hydroxide in conventional fire assay processes as these processes make use of clay pots and the sodium hydroxide would react with silica-in the pots and destroy them during heating. The sodium hydroxide does not however have this effect on a graphite or zirconium melting pot 46. Also, there has been no feasible way of storing and transporting NaOH, because it is hygroscopic, and the sealed containers calcium carbonate cannot be used in an induction furnace as it will blow out during rapid heating of the melting pot 46.

The paragraph beginning at page 21, line 4, has been added as follows:

Examples

IN THE CLAIMS

The paragraph beginning at page 27, line 1, has been amended as follows:

Claims What is Claimed:

1. A method ~~for~~of assaying an ore sample to determine the concentration of selected metals therein, comprising the steps of:

combining the prepared ore sample with a lead-containing flux in a receptacle;

inductively heating the combination to form a fusion of slag and lead, the lead

collecting ~~containing~~ the metals in the sample; and

separating the lead from the slag.

5. The method according to ~~any one of the preceding claims~~ Claim 1 wherein the sample of ore and flux are combined in a container made from carbon-based material, and the container, the sample and the flux are inductively heated.

7. The method according to Claim 5 ~~or 6~~ wherein the container includes identification means for identifying the sample contained therein.

9. A method according to ~~any one of the preceding claims~~ Claim 1 wherein the flux contains sodium hydroxide.

10. The method according to ~~any one of the preceding claims~~ Claim 1 wherein the sample is heated inductively within a graphite receptacle in an induction furnace.

11. The method according to ~~any one of the preceding claims~~ Claim 1 wherein the sample is heated inductively within a zirconium receptacle in an induction furnace.

12. The method according to ~~any one of the preceding claims~~ Claim 1 wherein molten lead separated from the slag is poured into a chilled mould, to provide a solid lead button.

15. A method according to ~~one of the preceding claims~~ Claim 12 wherein each solid lead button is stamped with an identification code.

16. A receptacle for use in a method ~~for~~of assaying an ore sample according to Claim 1, the receptacle comprising a base with a side wall extending from the base, the side wall

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defining a top opening into the receptacle, and the side wall having a collecting cavity, wherein the collecting cavity is sized to collect a predetermined amount of molten lead.

17. A receptacle for use in a method ~~for~~of assaying an ore sample according to Claim 16 wherein the collecting cavity is located proximate the top opening of the receptacle.

18. A receptacle for use in a method ~~for~~of assaying an ore sample according to Claim ~~16 or~~ 17 wherein barrier means is provided between the collecting cavity and the opening of the receptacle, to trap molten lead in the collecting cavity.

19. A receptacle for use in a method ~~for~~of assaying an ore sample according to ~~any one of claims~~ Claim 16 ~~to 18~~ wherein the collecting cavity is formed within a removable plug which is attachable to the side wall of the receptacle.

20. A receptacle for use in a method ~~for~~of assaying an ore sample according to ~~any one of Claims~~ Claim 16 ~~to 19~~ including a first spout located at the top opening, above the collecting cavity.

21. A receptacle for use in a method ~~for~~of assaying an ore sample according to Claim 20 including a second spout located at the top opening, diametrically opposed to the first spout.

22. A receptacle for use in a method ~~for~~of assaying an ore sample according to ~~any one of Claims~~ Claim 16 ~~to 21~~ wherein the receptacle is also a melting pot for an induction furnace.

23. A receptacle for use in a method ~~for~~of assaying an ore sample according to ~~any one of Claims~~ Claim 16 ~~to 22~~ made from graphite.

24. A method ~~for~~of separating molten lead from slag, in the receptacle of Claim 16, the method including the steps of:

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1. introducing a slag with a predetermined amount of molten lead therein into the receptacle;
 2. rotating the receptacle in a first direction toward the collecting cavity so that the molten lead fills and is retained within the cavity, rotating the receptacle further so that the slag is discharged from the opening to the receptacle;
 3. rotating the receptacle so that the molten lead flows out of the opening to the receptacle; and
 4. collecting the lead discharged from the opening of the receptacle.
26. A flux composition for use in a method ~~for~~of assaying an ore sample according to Claim 1, the flux composition containing sodium hydroxide.
27. A flux composition for use in a method ~~for~~of assaying an ore sample according to Claim 26, comprising 20% to 60%, by weight, sodium hydroxide.
28. A flux composition for a method ~~for~~of assaying an ore sample according to ~~any one of Claims~~ Claim 26 ~~to 27~~ further comprising:
29. A flux composition for use in a method ~~for~~of assaying an ore sample according to Claim 27 comprising 20% to 50%, by weight sodium hydroxide, 25% to 40% lead oxide and 25% to 40% borax.
30. A flux composition for use in a method ~~for~~of assaying an ore sample according to ~~any one of Claims~~ Claim 26 ~~to 29~~ further including silver nitrate.
31. A sealed container, for use in a method ~~for~~of assaying in an ore sample according to Claim 5, the sealed container made from a carbon-based sodium carbonate.
32. A sealed container for use in a method ~~for~~of assaying an ore sample according to Claim 31 including a replaceable lid.

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33. A sealed container for use in a method ~~for~~of assaying an ore sample according to
Claim 31 ~~or 32~~ made form a combustible material.

34. A sealed container for use in a method ~~for~~of assaying an ore sample according to
Claim 33 made from a plastics material.

35. A sealed container for use in a method ~~for~~of assaying an ore sample according to
Claim 34 made from a mixture of plastics material and a flux material.

36. A sealed container for use in a method ~~for~~of assaying an ore sample according to
Claim 35 wherein the flux material is calcium carbonate.

37. A sealed container for use in a method ~~for~~of assaying an ore sample according to
Claim 36, the mixture including 60 to 80%, by weight, calcium carbonate.

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